

CASE 3296: Application of PAN AM.  
for salt water disposal in its  
Horton Well No. 31.

CASE No.  
3296

Application,  
TRANSCRIPTS,  
SMALL Exhibits  
ETC.

Case 2296

December 14, 1965

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P  
Y

Pan American Petroleum Corporation  
P. O. Box 68  
Hobbs, New Mexico

Attn: Mr. V. E. Staley  
Area Superintendent

Dear Mr. Staley:

Receipt of the log on your R. E. Horton No. 31 Milnesand  
San Andres Pool R-2962 is gratefully acknowledged.

Yours truly,

S. E. Reynolds  
State Engineer

By:  
Frank E. Irby  
Chief  
Water Rights Div.

FEI/ma  
cc-A. L. Porter, Jr.

OIL CONSERVATION COMMISSION  
SANTA FE, NEW MEXICO

Date 8/31/65

CASE NO. 3296

HEARING DATE 9am 8/25/65  
DSN@SF

My recommendations for an order in the above numbered case(s) are as follows:

Enter an order authorizing  
Pan American Petr. Corp to  
dispose of produced salt water into  
the San Andres formation through its  
Russell E. Horton Well No 31, loc 990'  
FSL & 330' FWL of 29-85-35E  
mile south San Andres Pool Russell &  
Co., N.M. through perforations from  
4696-4700'. Injection is to be  
through plastic coated 2 7/8 tubing through  
set in a packer set at 4670'.  
The casing tubing annulus is to  
be ~~filled~~ <sup>corroded</sup> with inhibited water and  
left open at the top or equipped with  
a pressure gauge J. J. [Signature]  
Staff Member

OIL CONSERVATION COMMISSION

P. O. BOX 871  
SANTA FE, NEW MEXICO

September 13, 1965

Mr. Charles Malone  
Atwood & Malone  
Attorneys at Law  
Box 700  
Roswell, New Mexico

Re: Case No. 3296  
Order No. R-2962  
Applicant:  
Pan American Petroleum Corp.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

This order authorizes Pan American to utilize its Horton Well No. 31 for salt water disposal purposes in the Milnesand-San Andres Pool, Roosevelt County, New Mexico. As agreed to at the hearing, such injections are not to be commenced until a cement bond log has been run and filed with the Santa Fe office of the Commission and the State Engineer establishing that the top of the cement is well above the top of the San Andres formation.

Very truly yours,

A. L. PORTER, Jr.,  
Secretary-Director

ALP/DSH/og

cc: Oil Conservation Commission - Hobbs  
N. Mex. State Engineer Office - Santa Fe

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**BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO**

**IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:**

**CASE No. 3296  
Order No. R-2962**

**APPLICATION OF PAN AMERICAN PETROLEUM  
CORPORATION FOR SALT WATER DISPOSAL,  
ROOSEVELT COUNTY, NEW MEXICO.**

**ORDER OF THE COMMISSION**

**BY THE COMMISSION:**

This cause came on for hearing at 9 o'clock a.m. on August 25, 1965, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 13th day of September, 1965, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

**FINDS:**

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Pan American Petroleum Corporation, is the owner and operator of the Russell E. Norton Well No. 31 located in Unit M of Section 29, Township 8 South, Range 35 East, NMPN, Milnesand-San Andres Pool, Roosevelt County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the San Andres formation, with injection into perforations from 4696 to 4700 feet.

(4) That the injection should be accomplished through 2 7/8-inch internally plastic-coated tubing installed in a packer set at approximately 4670 feet; that the casing-tubing annulus should be filled with corrosion inhibited water; and that a pressure gauge should be attached to the annulus or the annulus left open at the surface in order to determine leakage in the tubing or packer.

-2-

CASE No. 3296  
Order No. R-2962

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

**IT IS THEREFORE ORDERED:**

(1) That the applicant, Pan American Petroleum Corporation, is hereby authorized to utilize its Russell E. Morton Well No. 31 located in Unit M of Section 29, Township 8 South, Range 35 East, NMPM, Milnesand-San Andres Pool, Roosevelt County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 4670 feet, with injection into the perforated interval from 4696 to 4700 feet;

**PROVIDED HOWEVER,** that the tubing shall be internally plastic-coated; that the casing-tubing annulus shall be filled with corrosion inhibited water; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the tubing or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

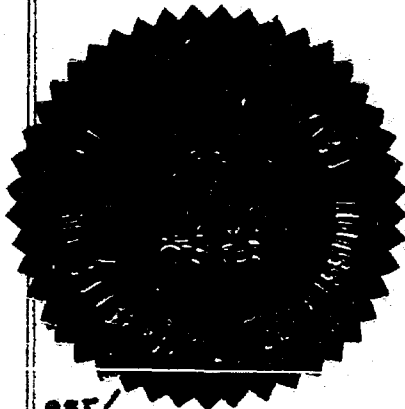
DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

*Jack M. Campbell*  
JACK M. CAMPBELL, Chairman

*Guyton B. Hays*  
GUYTON B. HAYS, Member

*A. L. Porter, Jr.*  
A. L. PORTER, Jr., Member & Secretary



esr/

DRAFT

JMD/esr

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

CF Subj. \_\_\_\_\_

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 3296

Order No. R-2962

APPLICATION OF PAN AMERICAN PETROLEUM  
CORPORATION FOR SALT WATER DISPOSAL,  
ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on  
August 25, 1965, at Santa Fe, New Mexico, before Examiner  
Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of September, 1965, the Commission, a  
quorum being present, having considered the testimony, the record,  
and the recommendations of the Examiner, and being fully advised  
in the premises,

FINDS:

(1) That due public notice having been given as required by  
law, the Commission has jurisdiction of this cause and the subject  
matter thereof.

(2) That the applicant, Pan American Petroleum Corporation,  
is the owner and operator of the <sup>Russell C.</sup> Horton Well No. 31 located in  
Unit M of Section 29, Township 8 South, Range 35 East, NMPM,  
Milnesand-San Andres Pool, Roosevelt County, New Mexico.

(3) That the applicant proposes to <sup>utilize said well to</sup> ~~plug back said Horton~~  
~~Well No. 31 to \_\_\_\_\_ feet and to~~ dispose of produced salt water  
into the San Andres formation, with injection into perforations  
from 4696 to 4700 feet.

(4) That the injection should be accomplished through  
2 7/8-inch internally plastic-coated tubing installed in a packer



set at approximately 4670 feet; that the casing-tubing annulus should be filled with ~~an inert fluid~~ *corrosion inhibited water*; and that a pressure gauge should be attached to the annulus *on the annulus left open at the surface*, in order to determine leakage in the tubing or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Pan American Petroleum Corporation, is hereby authorized to ~~plug back~~ *utilize* its *Russell C.* Horton Well No. 31 located in Unit M of Section 29, Township 8 South, Range 35 East, NMPM, Milnesand-San Andres Pool, Roosevelt County, New Mexico ~~to~~ ~~feet and~~ to dispose of produced salt water into the San Andres formation ~~in said well~~, injection to be accomplished through 2 7/8 -inch tubing installed in a packer set at approximately 4670 feet, with injection into the perforated interval from 4696 to 4700 feet;

PROVIDED HOWEVER, that the tubing shall be internally plastic-coated; that the casing-tubing annulus shall be filled with ~~an inert fluid~~ *corrosion inhibited water*; and that a pressure gauge shall be attached to the annulus *on the annulus left open at the surface*, in order to determine leakage in the tubing or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

PAN AMERICAN PETROLEUM CORPORATION

Post Office Box 68  
Hobbs, New Mexico

August 3, 1965

MAIN OFFICE OCC

'65 AUG 4 PM 1 02

File: VES-205-400.1x501.61

Case 3296


Subject: Application of Pan American  
Petroleum Corporation For  
Disposal of Produced Water  
Into the San Andres Formation  
Through Its R. E. Horton No. 31  
Milnesand San Andres Field  
Roosevelt County, New Mexico

Mr. A. L. Porter, Jr. (3)  
Secretary-Director  
New Mexico Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico

Dear Sir:

Pan American Petroleum Corporation respectfully requests that a hearing before an Examiner be scheduled to consider its application for disposal of produced water from the Milnesand San Andres Field into a San Andres zone non-productive of oil or gas through the R. E. Horton No. 31, located in Unit M, Section 29, Township 8 South, Range 35 East, Roosevelt County, New Mexico.

Yours very truly,

  
V. E. Staley  
Area Superintendent

Attachment  
cc: El Chorro Drilling Company  
Mobil Oil Company  
Sunray D-X  
Texaco, Inc.

DOCKET MAILED

Date 8/2/65

MAILING LIST

El Chorro Drilling Company  
1st National Bank Building  
Abilene, Texas

Mobil Oil Company  
P. O. Box 2406  
Hobbs, New Mexico

Sunray D-X  
P. O. Box 128  
Hobbs, New Mexico

Texaco, Inc.  
P. O. Box 3109  
Midland, Texas

# PAN AMERICAN PETROLEUM CORPORATION

Post Office Box 68  
Hobbs, New Mexico

August 17, 1965

File: VES-226-400.1x301.61

Subject: Application of Pan American  
Petroleum Corporation For  
Disposal of Produced Water  
Into the San Andres Formation  
Through Les E. E. Horton No. 31  
Milnesand San Andres Field  
Haskell County, New Mexico

55 AUG 20

State Engineer's Office  
State of New Mexico  
Post Office Box 1079  
Santa Fe, New Mexico

Dear Sir:

Attached herewith is a copy of Pan American Petroleum Corporation's application for disposal of produced water in the Milnesand San Andres Field. Also, attached is a brochure furnishing the information required in Rule 701.

If you have no objection to the proposed salt water disposal well, it would be appreciated if you would so advise by letter the New Mexico Oil Conservation Commission.

Yours very truly,

Original Signed by:  
V. E. STALEY

V. E. Staley  
Area Superintendent

Attachment

cc: New Mexico Oil Conservation Commission ✓  
P. O. Box 2000  
Santa Fe, New Mexico

### DISCUSSION

Pan American Petroleum Corporation respectfully requests that the New Mexico Oil Conservation Commission grant permission to dispose of produced salt water from the San Andres formation into its Russell E. Horton Well No. 31, located 990 FSL X 330 FWL, Section 29, Township 8 South, Range 35 East, Roosevelt County, New Mexico. Produced water will be disposed of into the San Andres formation perforated interval 4696-4700.

The Russell E. Horton Well No. 31 was originally completed on May 5, 1965, as a temporarily abandoned well in the Milnesand San Andres Field. The well was temporarily abandoned after unsuccessful attempts were made to obtain commercial oil production from the perforated intervals 4690-4710 and 4696-4700. These intervals failed to produce commercial quantities of oil.

Exhibit No. 1 of this application is a plat showing all wells within a two-mile radius of the proposed disposal well. Exhibit No. 1 also shows the formation from which these wells are producing or have produced from and the names of the lessees with a two-mile radius.

Exhibit No. 2 is a log of the proposed disposal well showing the proposed injection interval.

Exhibit No. 3 is a diagrammatic sketch showing the manner in which Pan American Petroleum Corporation plans to utilize the Russell E. Horton Well No. 31 for disposal purposes. The 4½" casing is adequately cemented to prevent communication with other formations, and the use of internally coated tubing, a packer and an inhibited annulus load fluid will adequately protect the casing from internal corrosion.

Exhibit No. 4 is a tabulation of the 29 wells on the Horton Lease furnished by well number and showing the daily current water production from these wells.

Exhibit Nos. 5 and 6 are log cross-sections through the proposed disposal well. Traces of these cross-sections are shown on Exhibit No. 1. These cross-sections show pertinent completion data for the proposed disposal well and for other nearby wells.

Approximately 650 barrels per day of produced San Andres water will be initially injected into the San Andres interval 4696-4700. The interval 4690-4710 was treated with 750 gallons of acid and produced approximately 2,700 barrels of water in six days. No shows of oil or gas were encountered. The interval was then squeezed with 200 sacks, drilled out to 4700 and perforated 4696-4700. Following a total treatment of 800 gallons of acid, the interval produced a total of approximately 400 barrels of water in four days with no shows of oil or gas.

# EXHIBIT No. 3

Elevation RDB 4222'

8-5/8" 24#/ft J-55 csg. set at 412', cemented with 225 sx  
cmt. circulated. Tested csg 1500 psi 30 min. - OK ✓

Annulus between tubing and casing to be loaded x inhibited  
water.

2-7/8" OD. Buttress Thread tubing landed in Model "D" packer  
set at 4670. (Tubing and packer to be plastic coated.)

San Andres perfs 4696-4700'

(Old Perfs 4690-4710', squeezed x 200 sxs)

TD  
4714'

4-1/2" 11.6 x 9.5# J 55 csg set at 4714' with 250 sx, tes  
casing 1500 psi 30 min. - OK

*Top out*

PAN AMERICAN PETROLEUM CORPORATION

USA Russell E. Horton #31, 990' FSL X 330' FWL, Sec. 29, T-8-S, R-35-E,  
Roosevelt Co., N. M. Diagrammatic sketch of proposed completion and hookup  
of water disposal well, Milnesand San Andres - Oil Pool

SCALE:

DRG.  
NO.

EXHIBIT NO. 4  
WATER PRODUCTION FROM WELLS TO BE CONNECTED TO  
RUSSELL E. HORTON NO. 31 DISPOSAL WELL  
MILNESAND SAN ANDRES FIELD, ROOSEVELT COUNTY, NEW MEXICO

<u>Russell E. Horton Well No.</u>	<u>Barrels of Water Per Day</u>
1	32
2	1
3	63
4	32
5	0
6	55
7	0
8	14
9	16
10	3
11	3
12	0
13	8
14	39
15	53
17	6
18	53
19	5
20	0
21	5
22	0
23	46
24	95
25	0
26	12
27	18
28	0
29	16
30	<u>75</u>
	650

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

PAGE 1

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
August 25, 1965

EXAMINER      HEARING

IN THE MATTER OF:

Application of Pan American Petroleum  
Corporation for salt water disposal,  
Roosevelt County, New Mexico.

Case No. 3296

BEFORE:      Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING



dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMAS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO  
1213 FIRST NATIONAL BANK EAST • PHONE 256-1794 • ALBUQUERQUE, NEW MEXICO

PAGE 2

MR. NUTTER: We will call next Case 3296.

MR. DURRETT: Application of Pan American Petroleum Corporation for salt water disposal, Roosevelt County, New Mexico.

MR. MALONE: May it please the Commission, Charles Malone of Atwood and Malone for the applicant. We have one witness and six exhibits.

(Whereupon, Applicant's Exhibits 1 through 6 were marked for identification.)

(Witness sworn.)

JAMES W. MEEK

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MALONE:

Q Would you state your name, your address and by whom you are employed?

A My name is James William Meek, 1623 Bracken Drive, Hobbs, New Mexico. I am employed by Pan American Petroleum Corporation.

Q What is your position with Pan American, please?

A My position with Pan American is Area Engineer in their Hobbs area office.

Q How long have you been in the Hobbs office for

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SJAMES BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO  
1313 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO

Pan American?

A Approximately eight years.

Q Does the jurisdiction of the Hobbs office for Pan American include the area in question in this application?

A Yes.

Q Are you personally familiar with the application and its details?

A Yes.

Q State very briefly, please, the purpose of the application.

A Pan American requests that the Commission grant permission to dispose of produced salt water in the San Andres formation from their Russell E.--San Andres water produced on this Horton lease in the Russell E. Horton Well No. 31.

Q Have you previously testified before the Commission, please?

A Yes, I have.

Q Were your qualifications accepted at that time?

A Yes, they were.

Q And they are a matter of record, are they, with the Commission?

A Yes, sir.

MR. MALONE: Will the testimony of this witness be acceptable?

MR. NUTTER: Yes, sir, it will be.

Q Now, then, Mr. Meek, into what formation did you say that this water would be disposed if the application were granted?

A The water will be disposed into the San Andres formation.

Q At what level, please?

A The level of disposal will be through perforations 4690, I beg your pardon, that's 4696 to 4700 in the San Andres formation.

Q Is this proposed injection well now producing oil or gas?

A No, it is not.

Q Did you test the proposed disposal interval for hydrocarbons?

A Yes. The proposed disposal interval was tested for hydrocarbons and only water production was obtained.

Q Now, then, going to Exhibit 1, would you please state what that shows?

A Exhibit 1 is a map of the Milnesand-San Andres field with the proposed injection well designated by the red arrow. There is a circle with a two-mile radius surrounding the proposed injection well; the producing horizon for wells within this two-mile radius are so shown on the map, which would be

San Andres in this field and the heavy outline indicates the Horton lease, which is operated by Pan American, from which water will be gathered for disposal.

Q And that heavy line you speak of is the cross-hatching that encloses three sections, is that correct?

A Yes, sir, Sections 29, 30 and 31.

Q Do you know, Mr. Meek, whether the ownership of the production within those three sections is common?

A Yes, it is.

Q What is the ownership there, please?

A The operating ownership is Pan American. The royalty is United States Government, with an override to Russell E. Horton.

Q You have the same ownership throughout the same three sections on which you intend to collect water and dispose of it in the proposed injection wells, is that correct?

A Yes.

Q Anything else as to Exhibit 1?

A No.

Q Would you go to Exhibit 2 now and explain it, please?

A Exhibit No. 2 is a full scale gamma ray neutron log of the Russell E. Horton No. 31 on which is depicted the top of what we designate San Andres Zone No. 5 with the proposed injection interval 4696 to 4700 shown also on the log.

Q What about Exhibit No. 3, please?

A Exhibit No. 3 is a diagrammatic sketch of the subsurface hookup in the proposed injection well showing the surface casing, 8-5/8ths, set at 412 feet, cemented with 225 sacks, which circulated; the test of 1500 pounds which was performed satisfactorily on that casing string; the total depth of 4714 is shown with oil string casing 4-1/2 inch, 11.6 9-1/2 pound J-55 casing set at total depth with 250 sacks, the casing test of 1500 pounds, 30 minutes also is shown.

The original perforations, 4696 to 4700, I beg your pardon, the original perforation of 4690 to 4710 are shown. The fact that they were squeezed and then the proposed perforations 4696 to 4700 depicted. The proposed hookup for disposal, 2-7/8ths inch buttress thread tube to be landed in a permanent packer set at 4670. The tubing and packer to be plastic coated. Also noted is the fact that it is planned to load the annulus between the tubing and casing with inhibited water.

Also shown on that exhibit is the elevation of 4222, and then in the description at the bottom, the legal location of the well is shown.

Q Now, your next Exhibit No. 4.

A Exhibit No. 4 is a tabulation by wells showing their water production in barrels per day of those wells on the

Russell E. Horton lease, showing total water production, current water production approximately 650 barrels per day.

Q Exhibit No. 5, please.

A Exhibit No. 5 is a north-south cross section, the trace of which is also shown on Exhibit No. 1. The proposed disposal well is shown on the right, or it would be the southernmost well in the section; subsea datum of minus 400 feet is depicted. Also shown is the top of the San Andres Zone 5, and in this particular section shows it gradually dipping to the south. The completion interval and the completion information for each of the three wells so shown on the exhibit is furnished at the bottom of the log reproduction.

Q Now, then, does your next exhibit show the other cross section reflected on Exhibit 1, which would be east-west?

A Yes, it does. That is Exhibit No. 6, and east-west direction, again starting with the proposed injection well showing two more wells to the west, again the subsea datum is shown, the top of the San Andres Zone 5, showing gradual dip to the east or Zone 5 and also the pertinent completion information for each of the wells shown on the section is furnished.

Q Am I correct in stating that with respect to Exhibit No. 2, which was the log of the well to be used for

injection, that you found the top of the San Andres Zone 5 at 4681 feet and tested water only, is that correct?

A Yes, sir, that is correct. The only production we got from the well was water.

Q Did Pan American furnish to the State Engineer of New Mexico a copy of the exhibits and folder constituting the brochure in this case with the request that the State Engineer give his approval of this disposal project?

A Yes, a copy of the application and the accompanying brochure was furnished in a letter dated August 17, 1965.

Q Have you heard anything from the State Engineer's office yet?

A No.

MR. MALONE: I might ask the Examiner if the State Engineer has --

MR. NUTTER: To my knowledge, Mr. Malone, we have not heard from the State Engineer's office regarding this case. There's a possibility that something has come in and is not in this case file. I haven't discussed it with Mr. Irby either.

MR. MALONE: I rather expected Mr. Irby to be here. He usually is on these disposal cases. Could the record of this hearing be kept open until we can determine the State Engineer's view in this matter? I assume they have no objection, but we've heard nothing and I want to be sure.

MR. NUTTER: Of course, the file will be open for any correspondence or statement that the State Engineer may want to file with the Commission regarding this matter.

MR. MALONE: We'll contact them immediately after this hearing if Mr. Irby or anyone else is available and see if they'll put something in writing on this.

Q (By Mr. Malone) Is there anything else with respect to these exhibits, Mr. Meek, that you wish to state?

A No, I believe that covers the discussion of the exhibits, Mr. Malone.

Q Were these exhibits prepared either by you or under your supervision?

A Yes, they were.

MR. MALONE: We move the admission in evidence of Exhibits 1 through 6, Mr. Examiner.

MR. NUTTER: Pan American's Exhibits 1 through 6 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 6 were offered and admitted in evidence.)

MR. MALONE: I believe that's all we have for the witness.

MR. NUTTER: Does anyone have any questions of Mr. Meek?



CROSS EXAMINATION

BY MR. NUTTER:

Q Is the production from all of the wells in this vicinity from San Andres 5?

A No, we have on the Horton lease what we term Zone 5 and Zone 6.

Q So some of the production is from a zone lower than this particular zone?

A Yes, there are wells that do produce from a lower zone.

Q In view of the gradual incline of Zone 5 from the Horton 31 to the offsetting wells both north and to the west, would it be likely that all of the production occurs above the zone that you are going to be injecting into? In other words, will you be injecting below the water-oil contact here?

A Well, in this particular well we were unable to establish any production and on a subsea basis we'll be going in only to depth of Zone 5. It's possible that, let's see, our offsetting Well No. 15 on the west is also completed in Zone 5.

Q I presume that these cross sections are hung on a common datum, all the wells on the cross section?

A Yes.

Q And actually the perforations in No. 15, which is

to the west are lower than, as far as the subsea elevation is concerned, than the injection zone in the No. 31, and the perforations in No. 21, which is the well immediately north, are just about the equivalent or slightly, maybe slightly higher than the injection zone in No. 31. What I am driving at, Mr. Meek, is the possibility of accidentally flooding out some of the producing wells that offset the injection wells.

A Of course, we will be having these wells on test and to keep a watch for that very thing. We don't anticipate any detrimental effect and if such becomes evident, why, we would terminate this project and we do not consider that any irreparable damage would develop.

Q What about the possibility of even stimulating production of the offsetting wells?

A There is some possibility of some beneficial results.

Q In effect, more or less of a pressure maintenance or waterflood type of action against the producing wells?

A I think we would have some good possibility of beneficial results.

Q How does the water cut on the offsetting wells compare with the average water cut for the other wells on the Horton lease?

A Let's see, that is Exhibit 4.

Q No. 15 is one of the bigger water producers



evidently. No. 21 is one of the smaller water producers?

A Well 15 would be in the range of approximately fifty percent, based on current information. It was initially completed water free. So we'll have a good water cut there. Let's see, No. 21, was that the other one you had a question about?

Q Yes.

A Well, it's relatively low.

Q It's free of water now almost but came in originally with high water cut?

A Water production has been very erratic but that is not unusual. It will vary in the San Andres from time to time.

Q What about the top of the cement on this 4-1/2 inch plug, has any survey been made to determine the top?

A No. A temperature survey was not run, but based on our experience in the field, actually this cement job was tailored on 150 percent of theoretical fill to come to the top of the 3900 or the top of the San Andres, and checking against calipers on some other wells, that volume would be 100 percent of caliper volume to fill to the same approximate height. We feel that we have seven or eight hundred foot, or cement to the top of the San Andres.

Q You feel confident about that?

A Yes.

MR. NUTTER: Frank, this is Case No. 3296, I believe it is, the application of Pan American for salt water disposal. The witness has testified as evidenced from the exhibit there, that he has 8-5/8ths surface pipe set at 412 feet with cement circulated, 4-1/2 inch pipe at 4714, cemented with 250 sacks. He said, based on similar wells in the pool, that this quantity of cement is sufficient to come up to the top of the San Andres. He's going to put a packer in and inject down tubing in this packer with the tubing plastic coated and the annulus between the tubing and casing loaded with inhibited water.

MR. IRBY: Frank Irby, State Engineer's office. Mr. Examiner, the questions that you were asking as I came in are the questions I have written down here, at least in a similar manner. I would ask the witness how he can determine, if there is a way he can determine where the top of this cement is so that we can have assurance that this water is going into the San Andres.

A Well, as I answered Mr. Nutter there awhile ago, we had calipers on earlier wells and computed a volume from that that would be sufficient to fill to above the top of the San Andres. During cementing operations we have had no loss in return, indicating any lesser fill than that, and we have put in a volume more than sufficient to infill to the designated point. Does that answer your question?

BY MR. IRBY:

Q This is what I understood from your answer to Mr. Nutter. I get an implication from what you say that you are just going to let it ride here, you are not going to do anything further, any testing, and if it goes into the San Andres, fine; if it doesn't, fine, is this correct?

A Well, now, in answer to your question, we could run a cement bond log that would show the top of the cement, but we anticipate this well to take fluid on gravities. I wouldn't think there would be any pressure differential that would force water to another zone. To specifically answer your question, if there is anything to be done to determine that fact, a temperature survey would be out of the question now, but there is that means of determining the top of the cement.

MR. MALONE: You mean the cement bond log which could be run, is that your testimony?

A Yes.

Q (By Mr. Irby) I take it from this reply, your answer is that there will be no injection pressure. It will be gravity injection all the way through the entire project?

A Well, I can't answer for what will be completely through the project, but initially we think the well will take the water on gravity.

MR. IRBY: I have no objection to this well

construction, as I would call it, provided no pressure other than the weight of the fluid is used in disposing of this salt water. I feel, and so recommend, that if pressure is to be used in disposing of this water, that it be determined beyond a reasonable doubt that the top of the cement is above the top of the San Andres.

BY MR. NUTTER:

Q In view of this, Mr. Meek, and Mr. Irby's position here, and the complete lack of knowledge that everyone has as to whether injection pressures are going to be necessary later on, wouldn't it be preferable to run a cement bond log at this time and find out if the top of the cement is above the San Andres? Then you wouldn't have to concern yourself with accounting for pressures on down the road.

A As I understand, in your situation, Mr. Irby, if that were done --

MR. IRBY: I would have no objection if you would have bond log.

MR. NUTTER: Then you would have no objection if pressure was used later on as long as you had knowledge that the water was going into the San Andres?

MR. IRBY: Right.

A Is there a question before me?

Q (By Mr. Nutter) Yes, sir. Wouldn't it be



preferable to run a bond log at this time and then not have to worry about pressures later? Would you agree to run a bonding log before converting the well to salt water injection?

A Yes.

Q And you'll file a copy of the bond log with the Commission and a copy with Mr. Irby?

A Yes.

MR. NUTTER: Will that be satisfactory?

MR. IRBY: If this is done and shows that the injected fluid will be contained in the San Andres, the State Engineer offers no objection.

MR. MALONE: Thank you.

MR. NUTTER: Does anyone have any further questions of Mr. Meek in this case? Mr. Meek, one final question.

Q (By Mr. Nutter) It appears from your Exhibit No. 1 that any well owned by any other operator in this pool is at least a mile or more away from the injection well, is that correct?

A Just a moment, let me check. Yes, sir, that is correct, the nearest well owned by another operator would be at least one mile from the proposed injection well.

Q So any interference that this water injection may have with any other producing well should be felt by Pan American prior to being felt by any other operator, we presume?

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A Yes, sir.

MR. NUTTER: Any further questions of Mr. Meek?

He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr.

Malone?

MR. MALONE: No, sir.

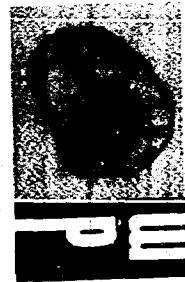
MR. NUTTER: Does anyone have anything further to offer in Case 3296? We will take the case under advisement.



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STATE OF NEW MEXICO )  
 ) ss  
 COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 4th day of September, 1965.

*Ada Dearnley*  
 NOTARY PUBLIC

My Commission Expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 3276 heard by me on 8/25, 1965.

*[Signature]*, Examiner  
 New Mexico Oil Conservation Commission

## PAN AMERICAN PETROLEUM CORPORATION

Post Office Box 68  
Hobbs, New Mexico

December 8, 1965

File: VES-348-501.61 x 986.510.1

Subject: Cement Top  
R. E. Horton No. 31  
Milnesand San Andres Pool  
R-2962

*Case File  
3296*

Mr. A. L. Porter, Jr.  
Secretary-Director  
New Mexico Oil Conservation Commission  
Post Office Box 2088  
Santa Fe, New Mexico

Dear Sir:

Your letter of September 13, 1965, to Mr. Charles Malone, transmitted copies of Order R-2962 and specified a cement bond log, showing the top of cement in the subject well, should be filed with the Santa Fe Office of the Commission and the State Engineer.

Attached is a copy of the requested log, showing the cement top at 3575 feet and the top of the San Andres at 3940 feet. A duplicate has been furnished the State Engineer's Office.

We trust this complies with the agreement reached at the hearing and plan to begin injection in the R. E. Horton No. 31 by the first of the year.

Yours very truly,

*V. E. Staley*  
V. E. Staley  
Area Superintendent

JWM:la

Attachment

cc: State Engineer's Office  
Santa Fe, New Mexico